

SWITCHMODE SERIES NPN POWER TRANSISTORS

... designed for use in high-voltage, high-speed, power switching in inductive circuit, they are particularly suited for 115 and 220 V switchmode applications such as switching regulator's,inverters,DC -DC conveter, Motor Controls, Solenoid drive and Deflection circuits.

FEATURES:

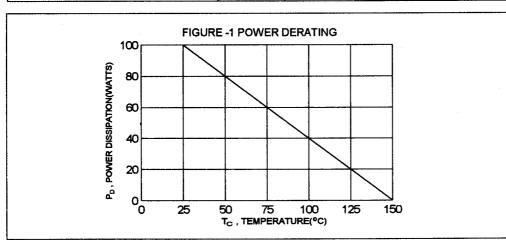
- *Collector-Emitter Sustaining Voltage-
- V_{CEO(SUS)} = 400 V and 300 V * Collector-Emitter Saturation Voltage -
- V_{CE(sat)} = 3.0 V (Max.) ② I_C = 12 A, I_B = 3.0 A * Switching Time t_γ =0.7 us (Max.) ② I_C =8.0 A * SOA and Switching Aplication Information.

MAXIMUM RATINGS

Characteristic	Symbol	MJE13008	MJE13009	Unit
Collector-Emitter Voltage	V _{CEO}	300	400	٧
Collector-Emitter Voltage	V _{CEV}	600	700	V
Emitter-Base Voltage	V _{EBO}	9		V
Collector Current - Continuous - Peak	I _C	12 24		Α
Base current	I _B	6		А
Total Power Dissipation @T _C = 25°C Derate above 25°C	P _D	100 0.8		W/°C
Operating and Storage Junction Temperature Range	T _J ,T _{STG}	-65 to +150		°C

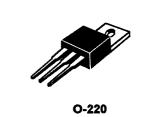
THERMAL CHARACTERISTICS

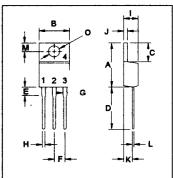
Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	Re jc	1.25	°C/W



NPN MJE13008 MJE13009

12 AMPERE **POWER TRANASISTORS** 300-400 VOLTS 100 WATTS





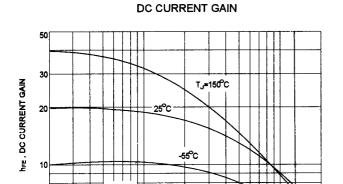
PIN 1.BASE 2.COLLECTOR 3.EMITTER 4.COLLECTOR(CASE)

5114	MILLIM	METERS
DIM	MIN	MAX
Α	14.68	15.31
В	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
Н	0.72 0.96	
1	4.22 4.98	
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
0	3.70	3.90

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Cha	racteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS	;	***			
Collector-Emitter Sustaining (I _C = 10 mA, I _B = 0)	Voltage MJE13008 MJE13009	V _{CEO(sus)}	300 400		V
Coliector Cutoff Current (V _{CEV} = Rated Value,V _{BE(off)} (V _{CEV} = Rated Value,V _{BE(off)}	_j =1.5 V) =1.5 V , T _C =100 °C)	I _{CEV}		1.0 5.0	mA
Emitter Cutoff Current (V _{EB} = 9.0 V, I _C = 0)		EBO		1.0	mA
ON CHARACTERISTICS	(1)				
DC Current Gain (I _C = 5.0 A, V _{CE} = 5.0 V) (I _C = 8.0 A, V _{CE} = 5.0 V)		hFE	8.0 6.0	40 30	
Collector-Emitter Saturation (I_C = 5.0 A, I_B = 1.0 A) (I_C = 8.0 A, I_B = 1.6 A) (I_C = 12 A, I_B = 3.0 A)	Voltage	V _{CE(sat)}		1.0 1.5 3.0	V
Base-Emitter Saturation Volt (I _C = 5.0 A, I _B = 1.0 A) (I _C = 8.0 A, I _B = 1.6 A)	tage	V _{BE(sat)}		1.2 1.6	V
DYNAMIC CHARACTERIS	STICS				
Current Gain - Bandwidth Product (I _C = 500 mA , V _{CE} = 10 V ,f = 1.0 MHz)		f _T	4.0		MHz
Output Capacitance (V _{CB} = 10 V , I _E = 0, f = 0.	1 MHz)	C _{ob}	180(typ)		pF
SWITCHING CHARACTE	RISTICS				
Delay Time	V _{CC} = 125 V, I _C = 8.0 A	t _d		0.1	us
Rise Time	 	tr		1.0	us
Storage Time	tp = 25 us,Duty Cycle ≦1.0%	t,		3.0	us
Fall Time		t,		0.7	us

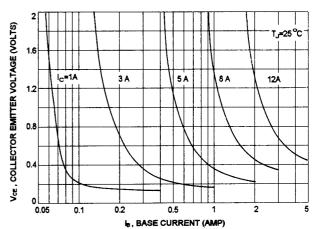
⁽¹⁾ Pulse Test: Pulse Width =300 us, Duty Cycle ≦ 2.0%



5 0.2

0.5



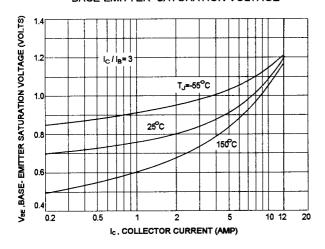




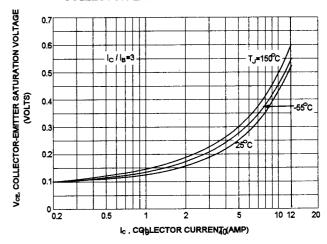
10 12

20

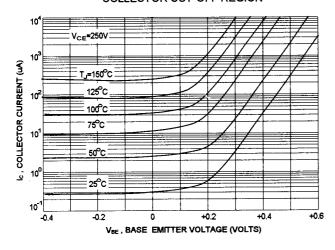
1 2 5
Ic , COLLECTOR CURRENT (AMP)



COLLECTOR-EMITTER SATURATION VOLTAGE



COLLECTOR CUT-OFF REGION



CAPACITANCE

